Case No. F99-0102

OKSFN0605149

REMOVAL SUPPORT REPORT
FOR
LIMESTONE LANDFILL FIRE
LIMESTONE, ROGERS COUNTY, OKLAHOMA

February 23, 1998

Prepared for:

Henry Thompson, Jr.
Project Officer
Program Management Branch
EPA - Region 6

Contract Number: 68-W6-0013

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Date: **February 23, 1998**

To: **Rita Engblom, TM/OSC**
EPA Region 6, Response and Prevention Branch

Thru: **Henry Thompson, Jr., PO**
EPA Region 6, Program Management Branch

Thru: **Christopher Quina, STL**
Region 6, Superfund Technical Assessment and Response Team

From: **Tamra Schkolovyi, PM**
Region 6, Superfund Technical Assessment and Response Team

Subj: **Removal Support Report: Limestone Landfill Fire**
Limestone, Rogers County, Oklahoma
TDD#: **S06-98-10-0008**
PAN: **070601RAXX**
LAT: **36° 20' 11.7" N**
LONG: **95° 46' 49.3" W**

Geographic coordinates of the landfill were determined by START using a hand-held Global Positioning System (GPS), operating in autonomous mode, based on the North American datum-83, with accuracy estimated at +/- 50 meters circular error probable.

I. Introduction

On October 7, 1998, the United States Environmental Protection Agency, Region 6, Response and Prevention Branch (EPA-RPB) was notified of an unpermitted construction and debris landfill fire. The site is located in a rural area approximately one mile north of Highway 20, at the intersection of 177th Street and 126th Street, in the unincorporated community of Limestone, Rogers County, Oklahoma (Attachment A). The potentially responsible party (PRP) is Charlie and Gayle Brackett, the property owners.

On October 7, 1998, EPA-RPB tasked the Region 6 Superfund Technical Assessment and Response Team (START) to perform an emergency response. START was specifically tasked by EPA Task Monitor/On-Scene Coordinator (TM/OSC) Rita Engblom to: conduct air monitoring; coordinate with federal, state, local, and PRP officials; identify and document the probable cause of the incident; maintain a site log book; prepare a draft pollution report (POLREP); prepare a site map and site sketch; conduct photographic documentation; collect

multimedia samples; prepare a waste assessment; procure laboratory services; prepare a quality assurance sampling plan; and review the validation of analytical laboratory results.

II. Background

On October 5, 1998, at approximately 0900 hours, the Limestone Fire Department was notified of a construction and debris landfill fire. The unpermitted landfill is located in a ravine directly north of two barns owned by the PRP (Attachment B). According to Oklahoma Department of Environmental Quality (ODEQ), the landfill is approximately 30 feet deep. Contents included various lumber scraps, solvents, paint thinners, PVC pipes, railroad ties, ceiling tiles, fiberglass insulation, insulation board, plywood, wafer board, carpet, carpet pad, composition shingles, and propane tanks (Attachment J). In addition, firefighters observed four explosions that were believed to been caused by 20-pound propane cylinders. The landfill lies in a ravine above an unnamed intermittent stream that flows into Hobbs Creek.

Northwest, Rolling Hills, Collinsville Rural, Catoosa, Tri-District Northwest, Verdigris, and Oak Grove Fire Departments helped extinguish the blaze. ODEQ was notified and arrived on October 5, 1998, to investigate the incident. The Claremore Fire Department HazMat Team performed air monitoring using trichloroethane colorimetric tubes which was detected at concentrations of 500 parts per million (ppm) in the immediate area of the fire. The cause of the fire is unknown.

III. Actions Taken

On October 7, 1998, EPA-OSC Rita Engblom and START members Tamra Schkolovyi, Brian Mason, Courtney Campa, and Steven Brown mobilized to the site to conduct a site investigation and perform area air monitoring. EPA and START observed a smoke plume with a fallout area extending approximately 5 miles southwest of the site. At 1800 hours, the Limestone Fire Chief initiated a voluntary evacuation of approximately 400 people in surrounding residences approximately 3 miles south of the landfill. ODEQ informed EPA that the state did not have the resources available to extinguish the fire. Consequently, EPA-OSC Engblom federalized the site at approximately 2030 hours. START performed residential air monitoring during the night using a Toxic Vapor Analyzer, single gas monitors, and colorimetric tubes to determine the type and concentration of hazardous materials in the smoke. No hazardous substances were detected.

On October 8, 1998, ODEQ informed EPA by written notice that the state could not provide resources to extinguish the fire. EPA coordinated with ODEQ and local fire departments to develop plans to extinguish the fire. START members Scott Moore and David Crow mobilized to the incident site with the Mobile Communications Center and a portable GC/MS to monitor for the presence of unknown volatile compounds. At 0900 hours the EPA Emergency and Rapid Response Services (ERRS) contractor (CET Environmental Services) arrived. EPA and ERRS conducted an overflight to assess the site and determine site access. START performed a Level B entry into the plume to analyze the contaminants in the smoke. Single gas monitors detected

hydrogen cyanide and ammonia above the permissible exposure limits (PEL) within the plume. In addition, the portable GC/MS unit detected low levels of chloromethane, benzene, toluene, ethylbenzene, xylenes, and stryrene directly south of the smoke plume. Only benzene was detected in the southwest corner of the smoke plume. No contaminants were detected at 126th Street approximately 500 feet southwest of the fire (Attachment B). Table 1 details the results of air monitoring by START.

Table 1. Air Monitoring Results from October 8, 1998.	**South of Plume (Location #15)***	**Southwest Corner of Plume (Location #16)***	**Near Residence (Location #18)***	**126th Street (Location #17)***
HCN single gas monitor	105 ppm	17 ppm	7 ppm	Not detected
NH_3 single gas monitor	24 ppm	4 ppm	Not detected	Not detected
Portable GC/MS	**Chloromethane** 0.9 ppm	**Methylene chloride** -0.05 ppm	Not analyzed at this location	Not detected
	Benzene 0.73 ppm	**Benzene** 0.13 ppm		
	Toluene 0.47 ppm			
	Ethylbenzene 5.59 ppm			
	M, P, Xylenes 1.40 ppm			
	Styrene 2.17 ppm			

*For air monitoring locations see Attachment B

ERRS constructed a temporary road approximately 1 mile long on an adjacent landowner's property, with a signed access agreement. The constructed roadway provided access for fire fighting and heavy machinery to enhance excavation activities.

On October 9, 1998, START performed a second Level B entry to monitor for hydrogen cyanide and ammonia in the smoke plume. The single gas monitors detected hydrogen cyanide and ammonia, and a colorimetric tube obtained a positive reading for cyanide. Table 2 details the results of air monitoring by START.

Table 2. Air Monitoring Results from October 9, 1998	**Smoke Plume**
HCN single gas monitor	72 ppm
NH_3 single gas monitor	16 ppm
Colorimetric Tubes	
Ammonia	No color change
Cyanide	Color change (presence of cyanide)
Phosgene	No color change
Vinyl Chloride	No color change

At 1300 hours, fire fighting and excavation activities began, with workers using level B protective equipment. START performed continuous air monitoring during excavation activities, and detected hydrogen cyanide at 14 ppm. A soil berm was constructed to contain runoff to prevent contamination of the nearby intermittent stream. At 1600 hours, the appearance of smoke being emitted from the material ceased. Air monitoring performed by EPA and START confirmed that hydrogen cyanide and ammonia were no longer present at detectable concentrations. A thermal imaging camera confirmed that the fire had been extinguished. At 1700 hours, EPA declared the fire extinguished, and the Limestone Fire Chief ceased the voluntary evacuation.

On October 10, 1998, START collected sediment, waste/debris, and surface water samples. Samples were collected from the waste pile, the intermittent stream (surface water samples), the soil berm (sediment sample), and a downstream pond (surface water and sediment) (Attachment B). Samples were analyzed for volatiles, semivolatiles, pesticides, metals, cyanides, reactive sulfides, pH, and ignitability. START collected and packaged the samples, and delivered them to the Armstrong analytical lab in Arlington, Texas. EPA-OSC Engblom stated that future waste

disposal activities would be based on the sampling results.

EPA-OSC Engblom concluded that based on the analysis of surface water samples received by EPA on November 5, 1998, that there revealed no contamination above drinking water Maximum Contamination Levels (MCL). According to the EPA Primary Drinking Water Standards and Health Advisories, the MCL for cyanide is 200 micrograms/liter. Cyanide was not detected above the MCL limit.

EPA continues to coordinate with ODEQ regarding the removal of the temporary road and disposal of material to an authorized landfill. ODEQ representative Eric Braly stated that the adjacent landowners requested that the temporary road be removed by April 1, 1999. According to Braly, ODEQ issued a Voluntary Consent Order to the PRP, which stated that removal of waste from the ravine was to be completed by January 1, 1999, and waste was to be removed from the property and disposed in an authorized landfill by May 31, 1999. As of January 14, 1999, debris remained in place and the PRP had not signed the Voluntary Consent Order. Consequently, ODEQ has initiated litigation proceedings with the PRP.

ATTACHMENTS:

A: Site Location Map
B: Site Sketch
C: Photographs (23)
D: Negatives (Retained in START File Only)
E: Unused Photograph (START File Only)
F: Digitized Photographs (EPA File Only)
G: Copy of POLREPs
H: Copy of Logbooks
I: Copy of Record of Communications
J: Copy of ODEQ Records
K: Consent for Entry and Access Agreement
L: Data Obtained from GC/MS
M: Copy of QUASPER
N: Copy of Chain of Custody Record (Original in EPA File Only)
O: Summary Table of Detected Materials
P: Data Validation Summary
Q: Analytical Results
R: Copies of TDD#s S06-98-10-0008, S06-98-10-0008-A, S06-98-10-0008-B